ESSROC- PSD Non-Applicability Request
Oct 25, 2012—Received November 9, 2012

- ESSROC never had a PSD permit but it is an existing major source for PSD- Cement production at Dorado, PR
- Currently, ESSROC is EQB permitted and has a few PSD non-apps. ESSROC can combust coal and on-spec waste oil as fuel. It operates one dry-pre-heater/pre-calciner rotary kiln- 682,550 tons/year clinker production capacity (850,000 t/y cement).
- Proposes to co-combust Biomass (cellulosic- rice husk, coffee husk etc., other biomass like wood pallets, bio-solids like sewage sludge)- approximately, 198,000 tons/year of biomass will need to be used if all the coal is replaced (90,000 tons/year). Kiln temp is between 2700-3400 F. ESSROC uses about 90,000 t/y of coal and 18.9 million gallons of waste oil. Plans to substitute 100% coal with other fuels ?
- No new installation of any equipment- tpy emissions will not increase- normalized emission rates in lbs/ton of clinker will remain unchanged.
- Max capacity is 682,550 tons/year clinker—Baseline clinker production is at 572,049 tons/year (average of 24 months). The Projected Actual emission rates are estimated at 682,550 t/y capacity. Baseline from 2002 to 2011…
- The NOx increases by 232 t/y, SO2 by 106 t/y, CO by 204 t/y, PM10 by 37 t/y…..
- **ESSROC argues that the emission rate in lbs/ton of clinker (Emission Factors) will NOT change—future increase in mass annual emission rates will NOT be due to proposed changes but it will be due to an INCREASE in production- an increase is expected due to demand growth….the whole project falls under DEMAND GROWTH exclusion – PAE/BAE comparison is not needed (see page 20/21) --EPA notes that the clinker production is going down from 2006 (562.663 t/y) to 2011 (255,288 t/y).**

- Issues- emission rate should be in the unit of time like t/y or lbs/hr and not lbs/TON, never reached or produced higher than the BAE level of clinker in last 10 years- so it could not have been accommodated, 572,049 t/y to 682,550 t/y …can it be demand growth?

- EPA responded asking more information on Dec 11, 2012.

ESSROC- PSD Non-Applicability Request
Jan 18, 2013 letter from ESSROC- received via e-mail on Jan 21—via mail on Jan 25, 2013

- Revises the max clinker production to baseline year average—579,763 tons/year when using biomass- not to max 682,550 t/y when using coal/oil. BAE and PAE difference is below significance, negative or zero for criteria pollutants at 579,763 t/y clinker. Baseline years changed in this revised submittal from 2005-2006 to 2004-2005. [572,048 t/y to 579,763 t/y]
- For PAE- biomass emission factors are changed- this revision includes biomass EFs from CEMEX facility in Florida. Agrees to stack test to confirm the EFs with biomass
- Requests that if coal and waste oil is used- the clinker limit should be 682,550 t/y.

- Under this revision—with biomass- the NOx (-296 t/y), CO (+40 t/y), SO2 (no change assumed-but expected to be lower), VOC (+6.4 t/y), PM10 (no change).

ESSROC-PSD Non-App Request
Feb 21, 2013- E-mail

- In response to EPA's questions as to how ESSROC plans to comply with 2 production scenarios….it responded that it will still keep the max production at 682,550 t/y but limit the biomass use.
- ESSROC will limit biomass to 35% of amount of fuel permitted- that is, 70,000 t/y of biomass use. ESSROC claims that if it limits the biomass use to 35%-it will be below the PSD significance threshold.
- ESSROC provided a set of permit terms it will comply with to be within the non-app limits.

ESSROC-PSD Non-app
March 7, 2013- e-mail

- In response to EPA's questions on Btu heat input requirements for the clinker production.
- ESSROC stated that it consumes 1450-1750 Btu per pound of clinker produced
- Coal and Biomass- 1450 Btu/lb of clinker, Used Oil- 1735 Btu/lb of clinker
- Coal @ 22 MMBtu/ton-----Biomass @ 10 MMBtu/ton---Used Oil @ 34 MMBtu/ton
- Estimated based on 90,000 tons/yr coal and 682,500 tons clinker
- Estimated based on 69,657 tons/y used oil and 682,500 tons clinker
- Estimated based on 70,000 tons/yr biomass and 241,300 tons clinker

Dholakia, Umesh

From: Angel Berrios [Angel.Berrios@erm.com]
Sent: Wednesday, March 13, 2013 8:30 PM
To: Dholakia, Umesh
Cc: beatriz.rivera@essroc.com; Steve Cullen
Subject: RE: Essroc Answer to Request for Information
Attachments: 2012 Internal Testing.pdf

Umesh,
Essroc currently have CEMs for the following pollutants: SO2, NO2, CO and O2. They are in the process of installing a Hg sensor.

An internal test was performed last year by Essroc. The pollutants were the following: Metals, PM10, Condensable PM10, Benzene, HCl, PM2.5, PAH and PM. Attached are the results from the test.
If you need any other information let me know.
Angel

From: Dholakia, Umesh [Dholakia.Umesh@epa.gov]
Sent: Wednesday, March 13, 2013 9:57 AM
To: Angel Berrios
Cc: beatriz.rivera@essroc.com; Steve Cullen
Subject: RE: Essroc Answer to Request for Information

Thanks.

Are there any CEMs currently in use- for the kiln stack?
Was there any stack test done for any pollutant?

From: Angel Berrios [mailto:Angel.Berrios@erm.com]
Sent: Thursday, March 07, 2013 9:38 AM
To: Dholakia, Umesh
Cc: beatriz.rivera@essroc.com; Steve Cullen
Subject: RE: Essroc Answer to Request for Information

Umesh, the Btu/lb clinker for Essroc is in the range of 1450 - 1750 Btu/lb clinker which are the between the average used in the industry. See attached document with example of calculations for coal, biomass and used oil.

Angel

From: Dholakia, Umesh [Dholakia.Umesh@epa.gov]
Sent: Thursday, February 28, 2013 9:01 AM
To: Angel Berrios
Cc: beatriz.rivera@essroc.com; Steve Cullen
Subject: RE: Essroc Answer to Request for Information

Thanks.

What is the heat balance? That is, what is the MMBTU/ton of clinker produced number for ESSROC? Is it [1980000 MMBTU/241,000 tons]? The average is around 1800 Btu/lb of clinker.....that I have seen.

From: Angel Berrios [mailto:Angel.Berrios@erm.com]
Sent: Wednesday, February 27, 2013 6:33 PM
To: Dholakia, Umesh

Cc: beatriz.rivera@essroc.com; Steve Cullen
Subject: Essroc Answer to Request for Information

Umesh ,

The following are the answer to your questions.

The up to 35 percent of AF substitution represent the substitution of the current fuels used at Essroc. The approach that we would like to use is adding the use of a new fuel to the process.

The use of up to 70,000 tons of alternative fuel per year represent a substitution of approximately 32,000 tons of coal per year or 22,000 tons of oil. The total amount of clinker that can be produced is up to 241,305 ton of clinker per year which is below the current permitted limit.

1. Please justify ESSROC's proposed 35% (70,000 tons/year) limit with Heat Input numbers- MMBtu/year or better.

The idea is to maintain the same requirements established in the permits issued to Essroc for coal and oil. The approach used in the construction and Title V permit is to establish the amount of fuel that is need for the production of clinker. As stated above the plans are to substitute up to 35 percent of the current fuels used at the facility. The following information will provide you with the percent of substitution of fossil fuel.

Type Fuel	Total Fuel (ton/year)	Average Heat Content (MMBtu/ton)	Total Heat Input for Clinker Production (MMBTU/year)	Percent Substitution
Coal	90000	22	1980000	35%
Biomass	70000	10	700000	

Type Fuel	Total Fuel (ton/year)	Average Heat Content (MMBtu/ton)	Total Heat Input for Clinker Production (MMBTU/year)	Percent Substitution
Oil	69657	34	2368338	30%
Biomass	70000	10	700000	

2. Does ESSROC keep track of the coal, oil, and tire's heat contents?
Yes, Essroc maintain records of each batch of coal or oil received.

3. Also, ESSROC proposes to stack test to verify the emission factors used in this non-app demonstration- that is my understanding.

Yes, a stack test will be performed to verify and emission factors.
If you have any more questions please let me know.

Angel

Angel O. Berríos Silvestre, P.E.